

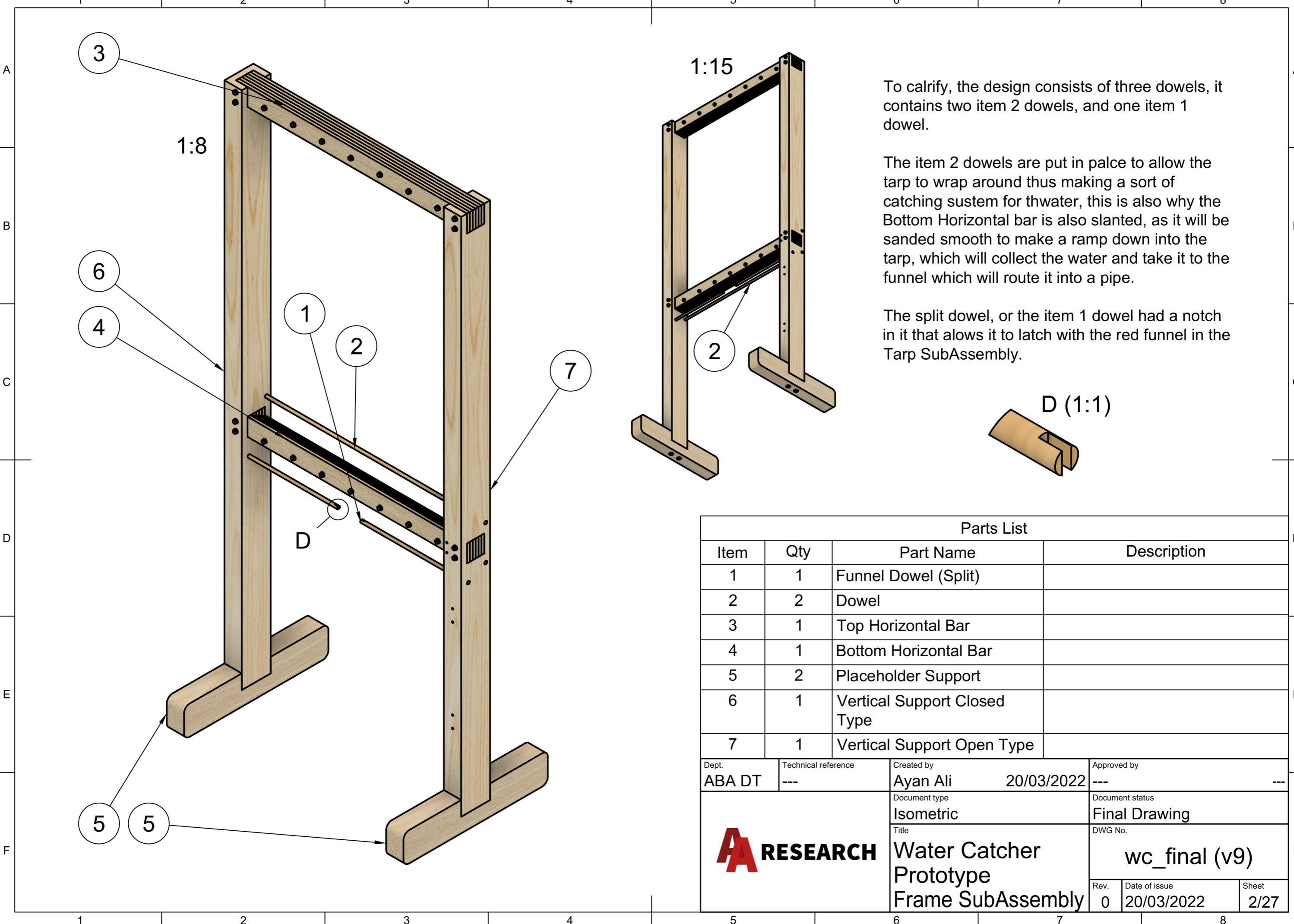
This is the final and complete Water Catcher Prototype. Some major improvements would be to instead use aluminium for its lower weight, cost at large quantities, durability, etc. another one would be to substitute the placeholder support legs with a proper system that digs into the ground, or bolts into concrete for strength.

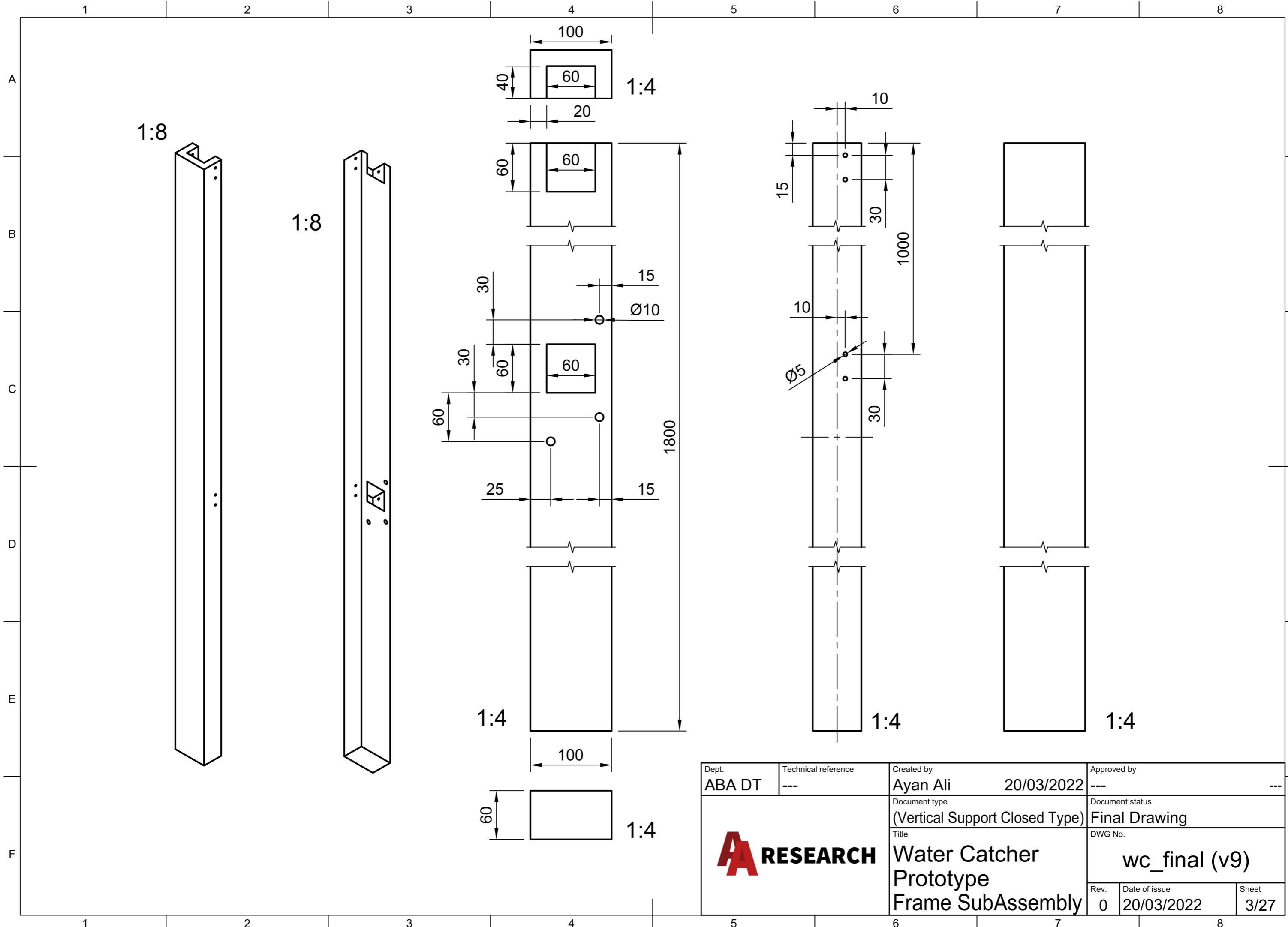
We have not done these changes as:

- (1) We have ran out of time due to the pandemic reducing the manufacturing phase of the project, and thus some changes have been done to the design to reduce complexity.
- (2) We do not have the facilities available to weld, shape, drill, and cut aluminium, hence we have compromised with a wood frame.
- (3) The proper ground mounting system has been replaced with placeholders as the prototype would be too unwieldy and large with a proper ground mounting system, we also have no way of testing such a system as we do not have concrete mounting points nor suitable soil for digging the supports into the ground.

Parts List			
Item	Qty	Part Name	Description
1	1	Frame Assembly	
2	1	Tarp Assembly	
3	1	Filter Assembly	

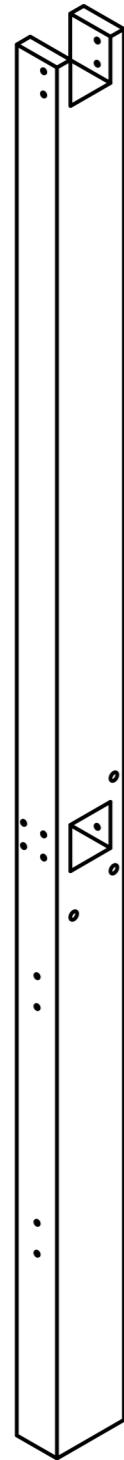
Dept. ABA DT	Technical reference ---	Created by Ayan Ali 20/03/2022	Approved by ---
		Document type Isometric	Document status Final Drawing
		Title Water Catcher Prototype Main Assembly	DWG No. wc_final (v9)
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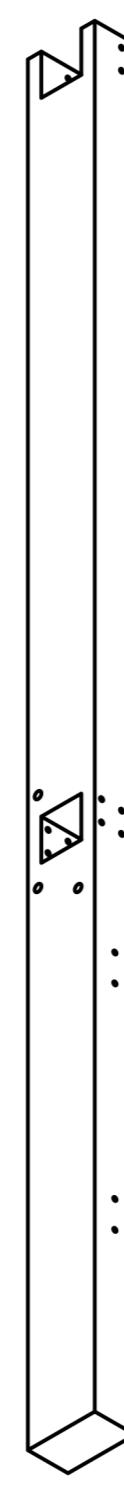


A

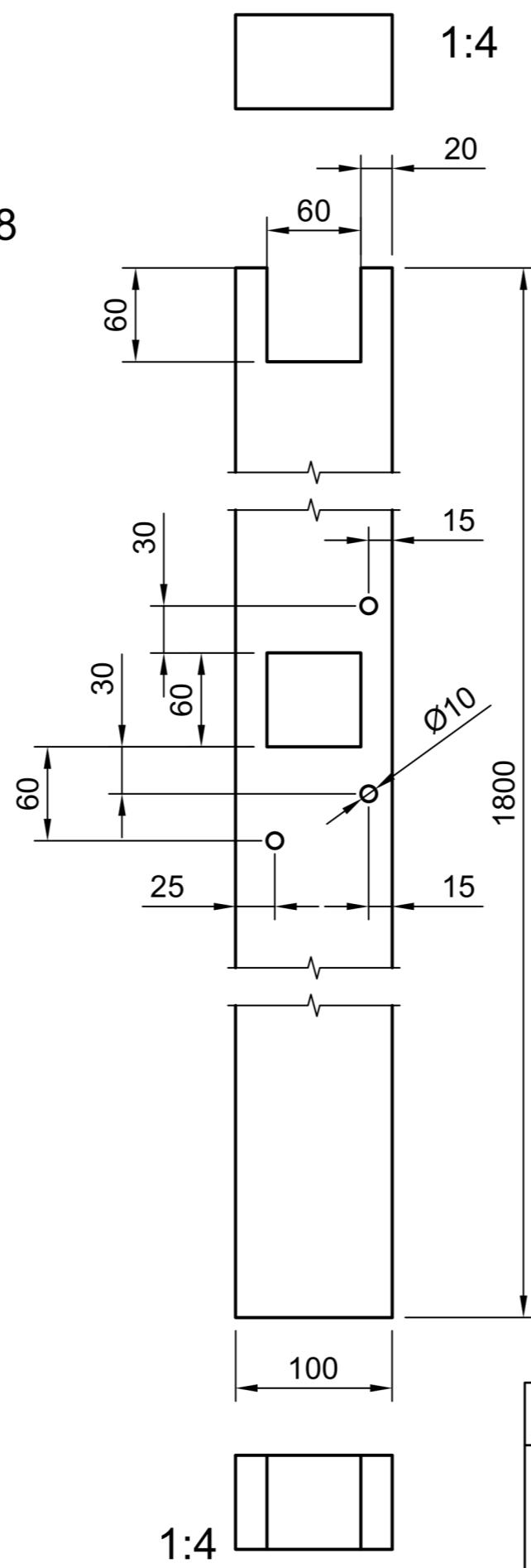
1



1:8

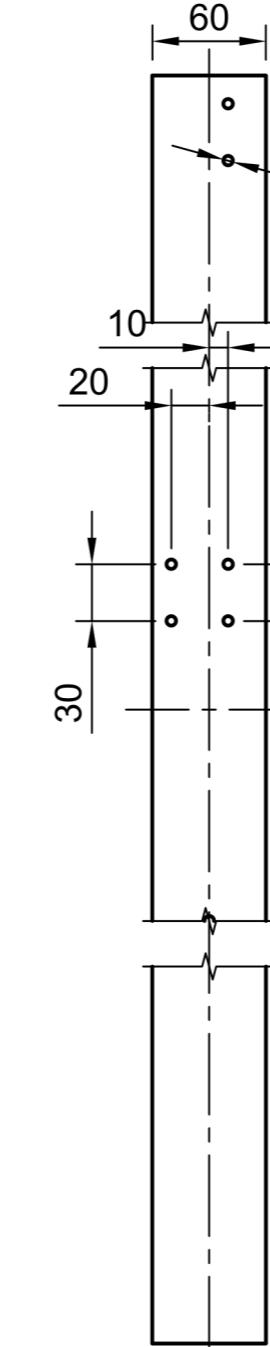


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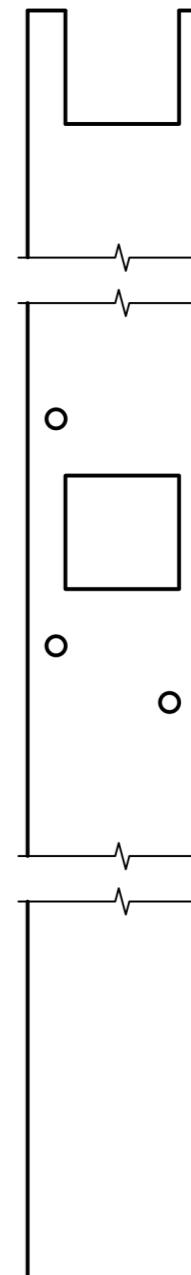
1:4

There are two types of vertical support beams, one that is open and one that is closed, in the final product the closed beams will act as end stops to a large array of filters that are connected modularly, this is also why there are two sets of holes for the horizontal support bars in different positions, this is further elaborated on in the placeholder support section



1:4

15



1:4

Dept. ABA DT	Technical reference ---	Created by Ayan Ali	Approved by ---
		Document type (Vertical Support Open Type)	Document status Final Drawing
		Title Water Catcher Prototype Frame SubAssembly	DWG No. wc_final (v9)
		Rev. 0	Date of issue 20/03/2022
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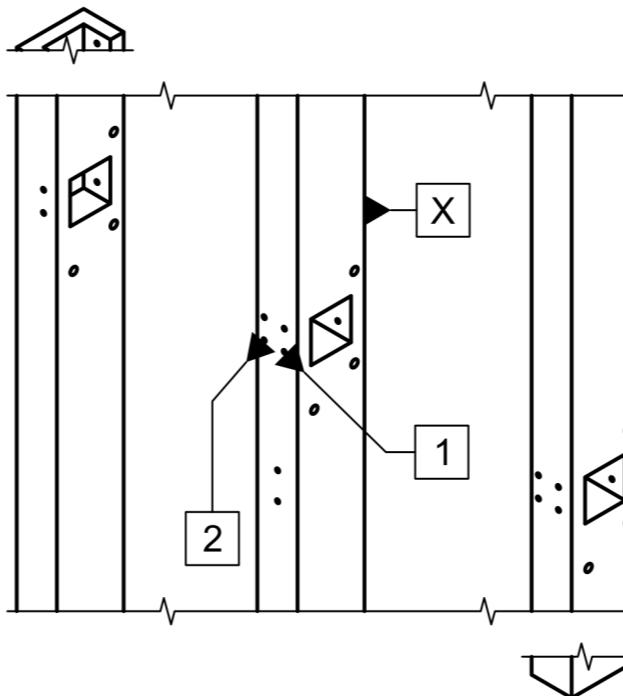
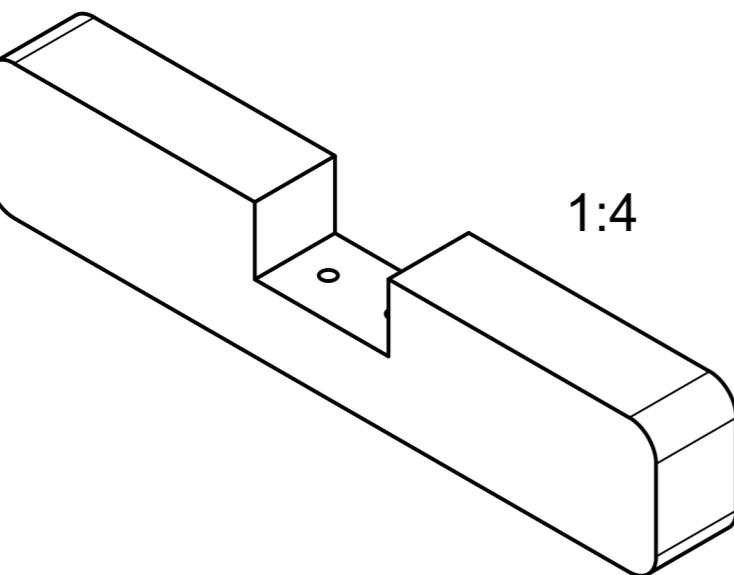
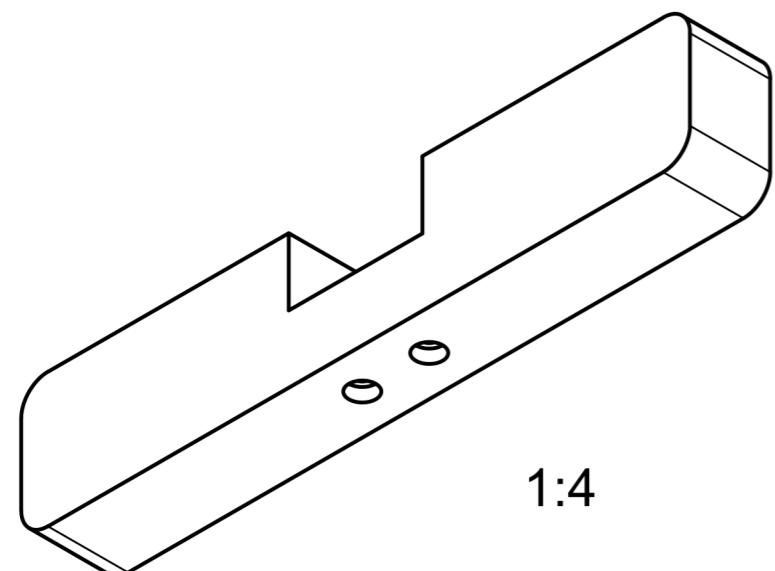
A

Elaboration of vertical support types:

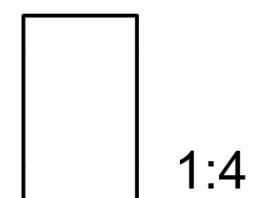
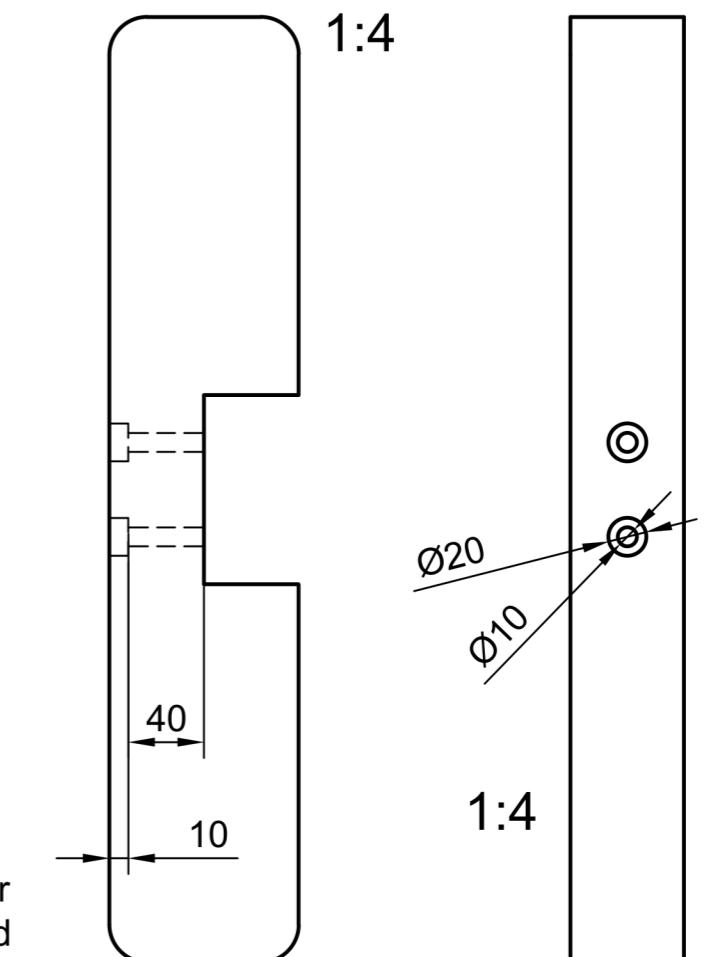
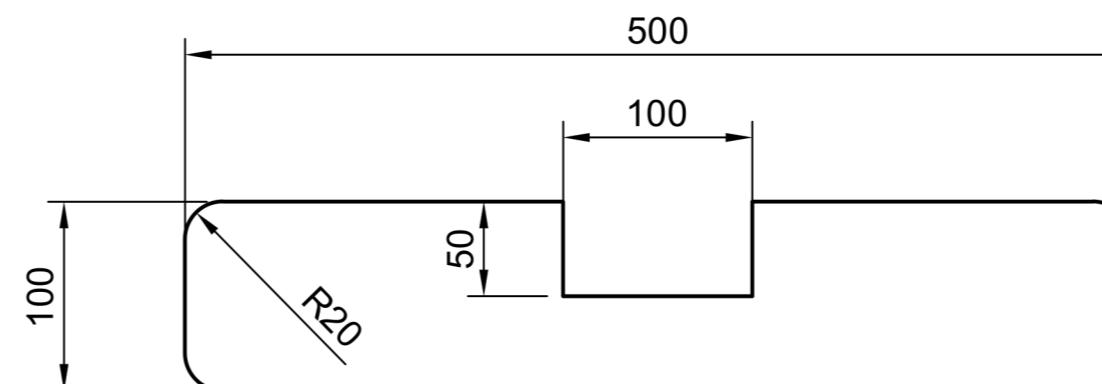
So for the device to be modular new vertical support beams can be added adacently to the already existing two beams thus increases the capacity of the water catcher.

There are two sets of holes in the open type vertical support, one is for a vertical beam that only has one horisontal bar, and the second hole for if there are two horizontal bars due to another module being added on adjacently to the vertical support bar.

A diagram is shown on the right:



If the water catcher is used pwith only one module or net, then only holes 2 are used to bolt the singular horizontal bar, and the edge of the bar will be flush against X, however if two modules or more are used then only half of the horizontal bar will go through giving space for the other horizontal bar to go through too and each bar will be bolted to 1 and 2 respectively.



Dept. ABA DT	Technical reference ---	Created by Ayan Ali 20/03/2022	Approved by ---
		Document type (Placeholder Support)	Document status Final Drawing
		Title Water Catcher Prototype Frame SubAssembly	DWG No. wc_final (v9)
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1 2 3 4 5 6 7 8

A

A

B

B

C

C

D

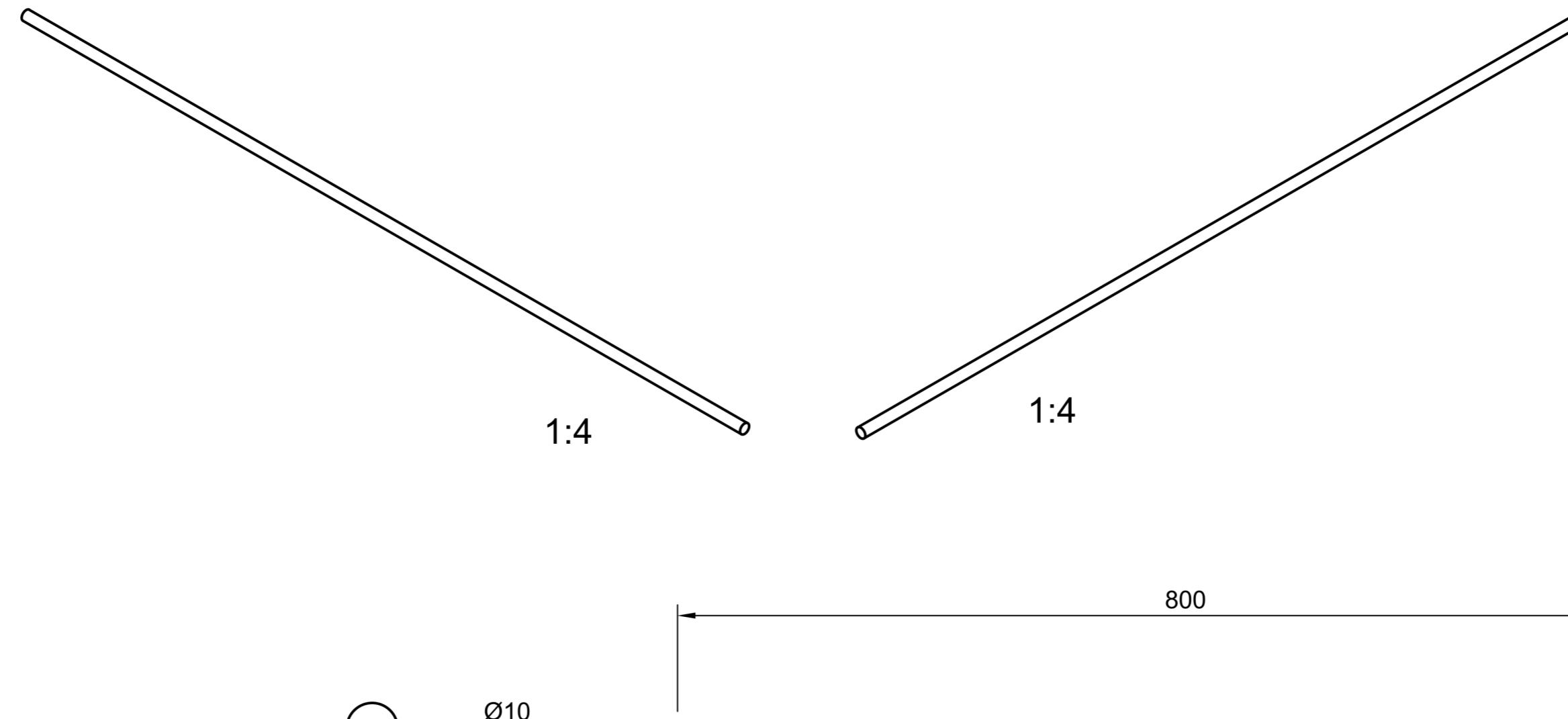
D

E

E

F

F



Dept. ABA DT	Technical reference ---	Created by Ayan Ali 20/03/2022	Approved by ---
		Document type (Dowel)	Document status Final Drawing
		Title Water Catcher Prototype Frame SubAssembly	DWG No. wc_final (v9)
		Rev. 0	Date of issue 20/03/2022
			Sheet 6/27

1 2 3 4 5 6 7 8

A

A

B

B

C

C

D

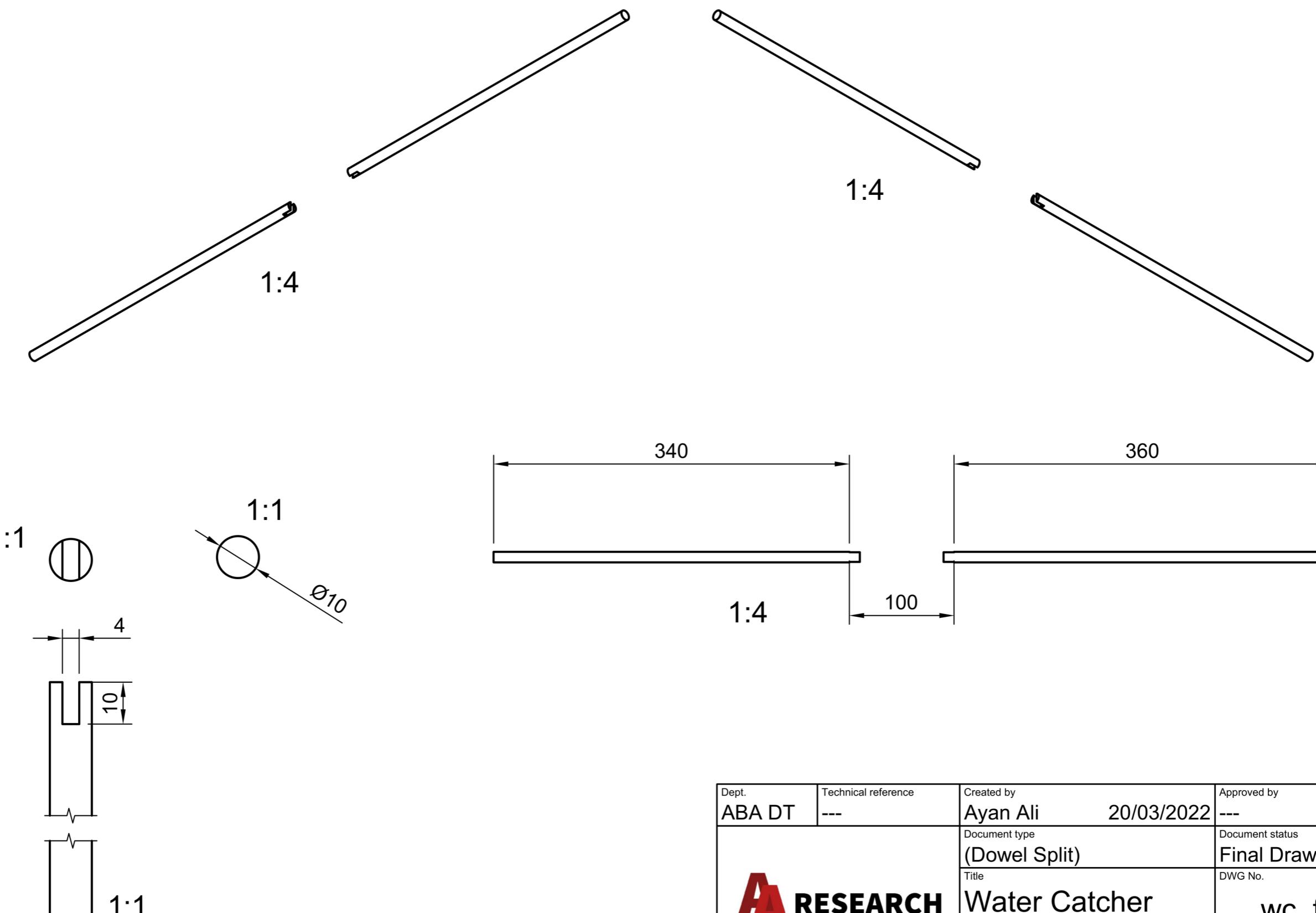
D

E

E

F

F



Dept. ABA DT	Technical reference ---	Created by Ayan Ali 20/03/2022	Approved by ---
		Document type (Dowel Split)	Document status Final Drawing
		Title Water Catcher Prototype Frame SubAssembly	DWG No. wc_final (v9)
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A RESEARCH

A

There are six different sections of plank in the bottom horizontal bar, each with a different "cut" inside of them, there are:

- (1) Section 2.5cm Cut
- (2) Section 2.0cm Cut
- (3) Section 1.5cm Cut
- (4) Section 1.0cm Cut
- (5) Section 0.5cm Cut
- (6) Section No Cut

B

The six different sections form the horizontal support bar and they had two purposes, firstly act as a structural piece between the two vertical support beams, and secondly they have holes inside of them that allow bolts to pass through which can tightly clamp 5 pieces of net between the six sections.

C

The bottom horizontal piece acts as the clamping part, while the top horizontal bar is adjustable as it is easier to get to. This allows the user to be able to get the exact tension in the net as needed.

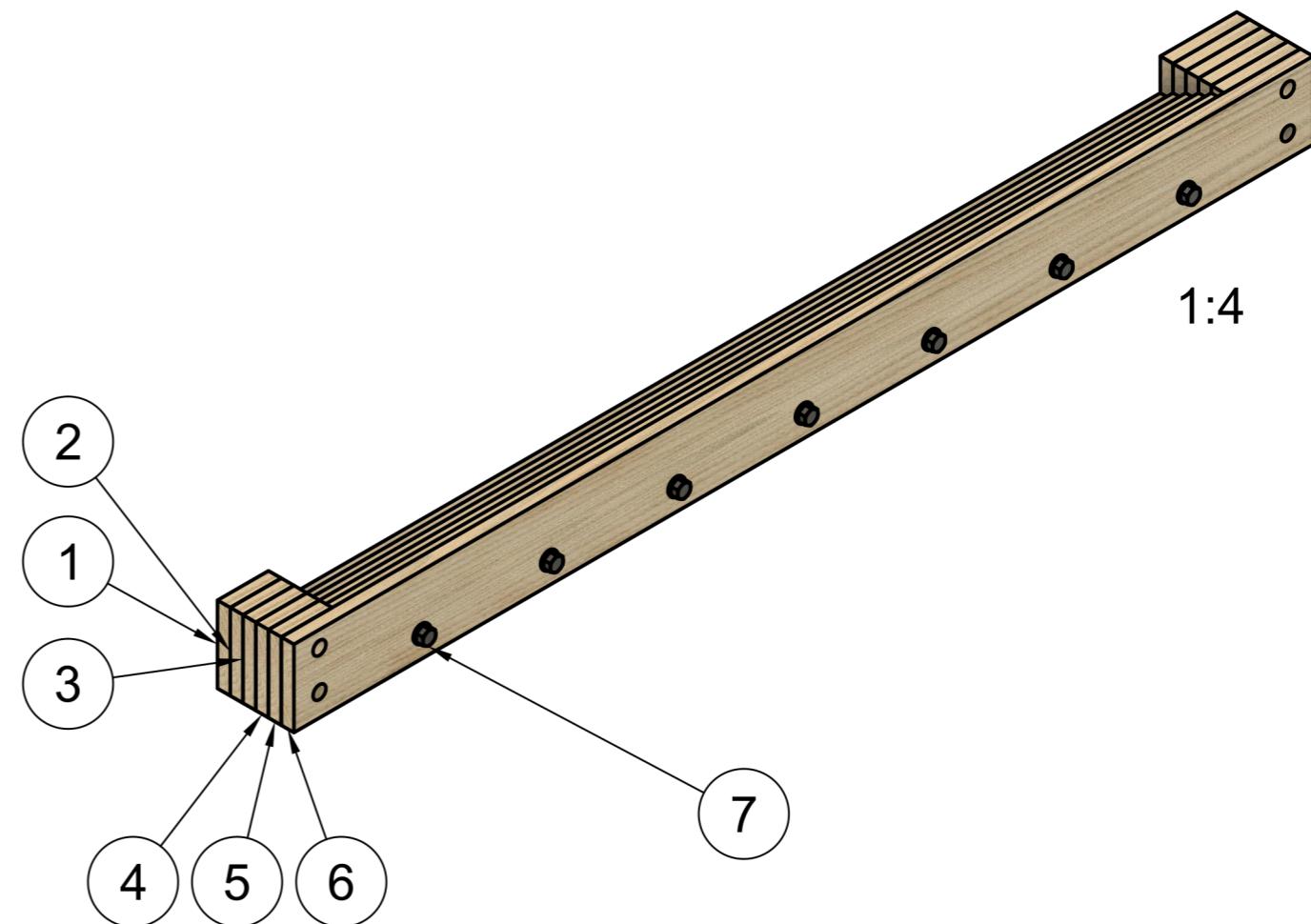
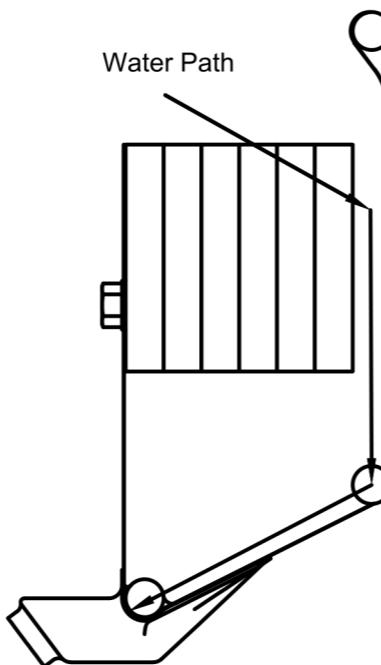
D

The bottom Horizontal piece has six different pieces as they form a sort of ramp to allow the water to roll down into the tarp, and then into a 3D printed funnel for collection.

E

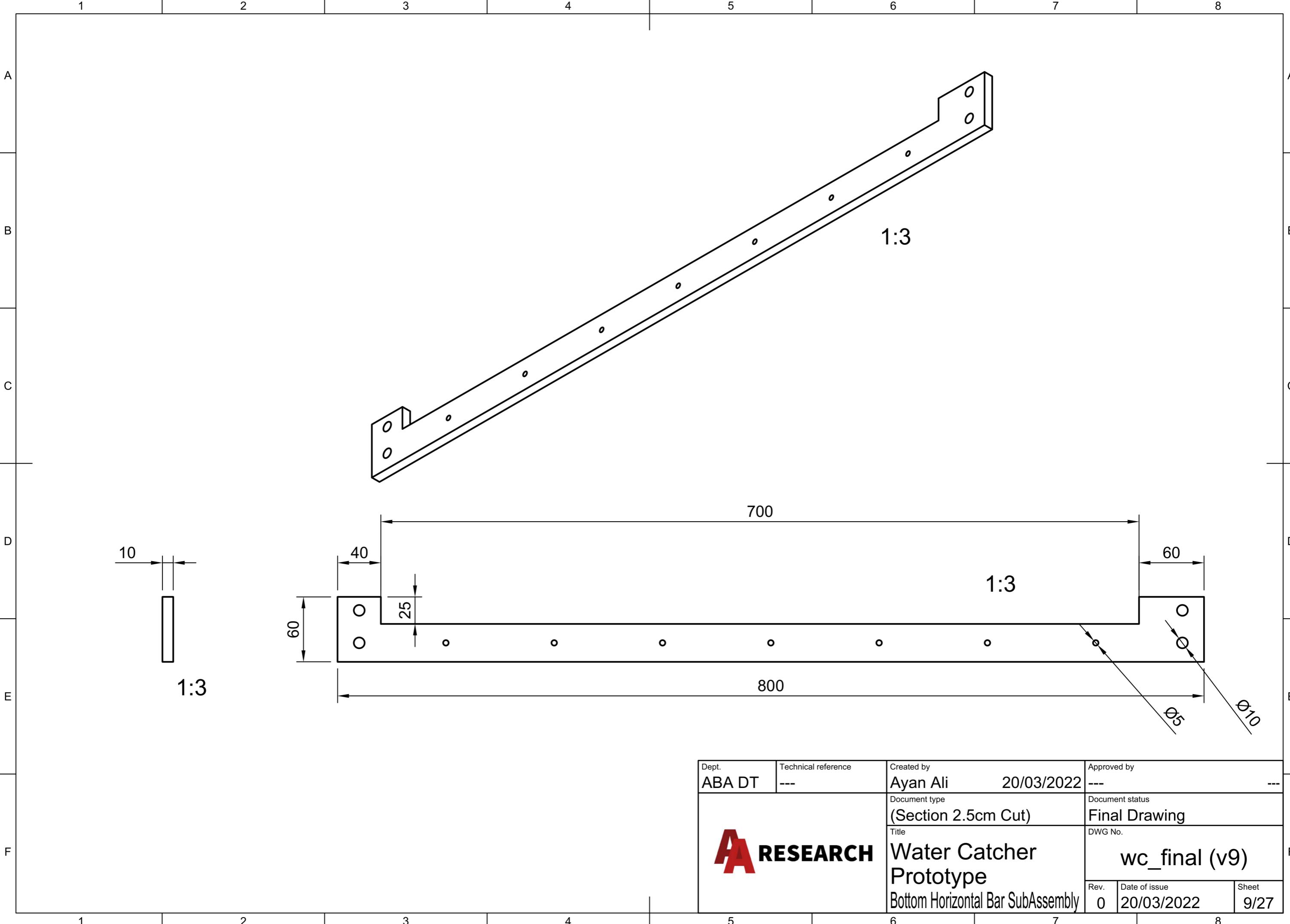
The path of the water is shown on the right:

(The ramp is not shown, but the water goes in that direction)



Parts List			
Item	Qty	Part Number	Description
1	1	Section (2.5cm cut)	
2	1	Section (2cm cut)	
3	1	Section (1.5cm cut)	
4	1	Section (1cm cut)	
5	1	Section (0.5cm cut)	
6	1	Section (No cut)	
7	7	Hex M6 6cm Cut Screw	

Dept. ABA DT	Technical reference ---	Created by Ayan Ali 20/03/2022	Approved by ---
		Document type Isometric	Document status Final Drawing
		Title Water Catcher Prototype Bottom Horizontal Bar SubAssembly	DWG No. wc_final (v9)
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1 2 3 4 5 6 7 8

A

A

B

B

C

C

D

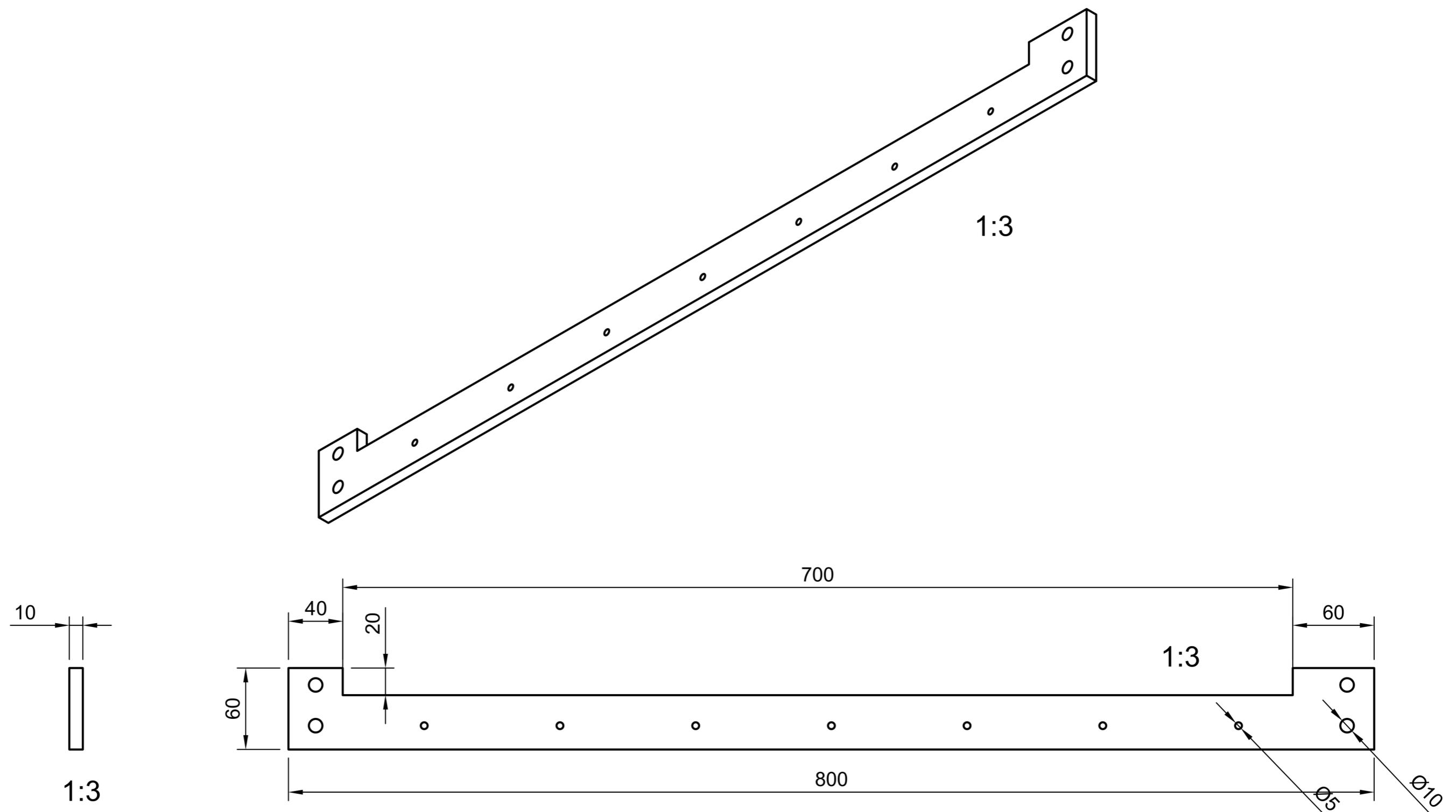
D

E

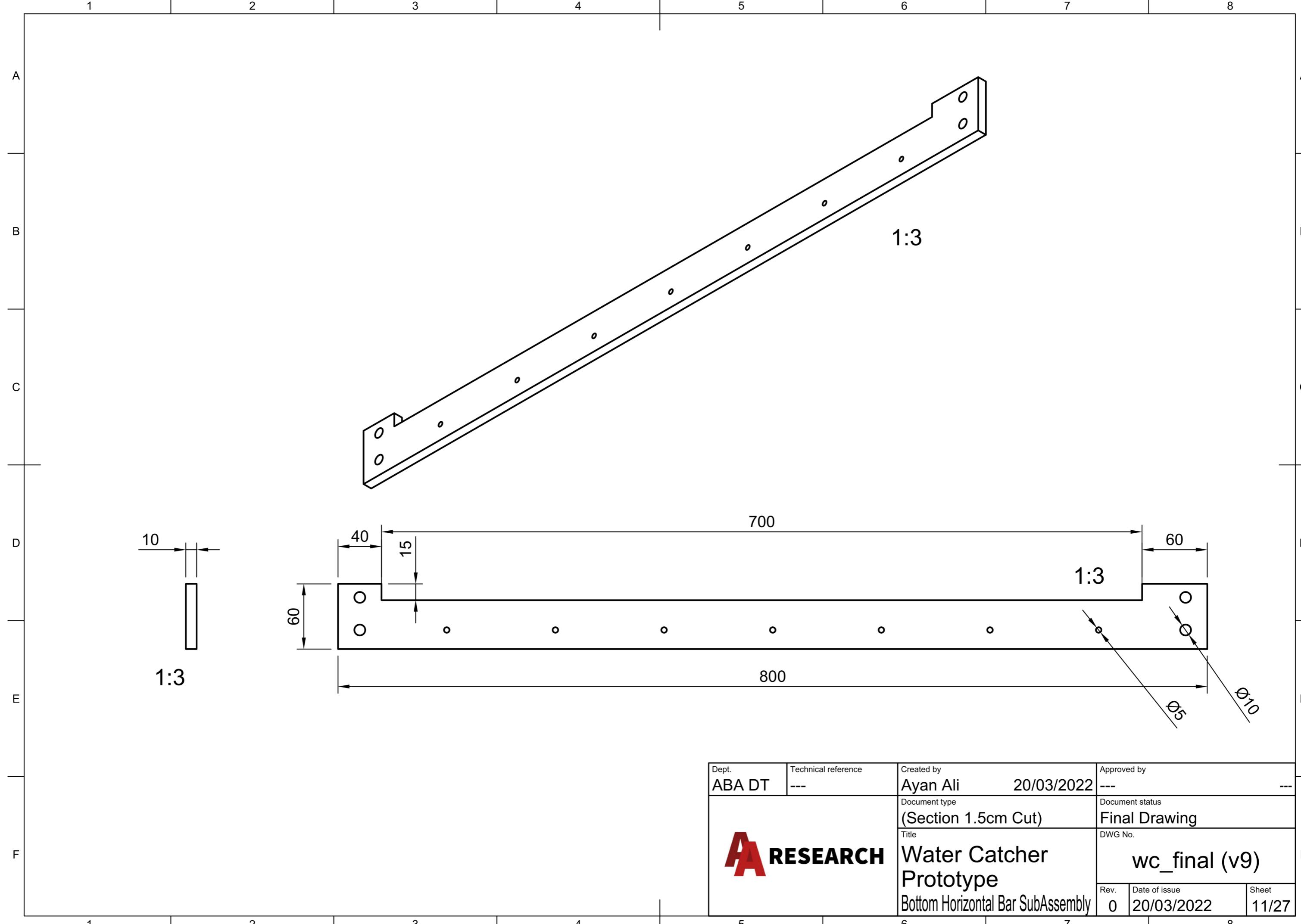
E

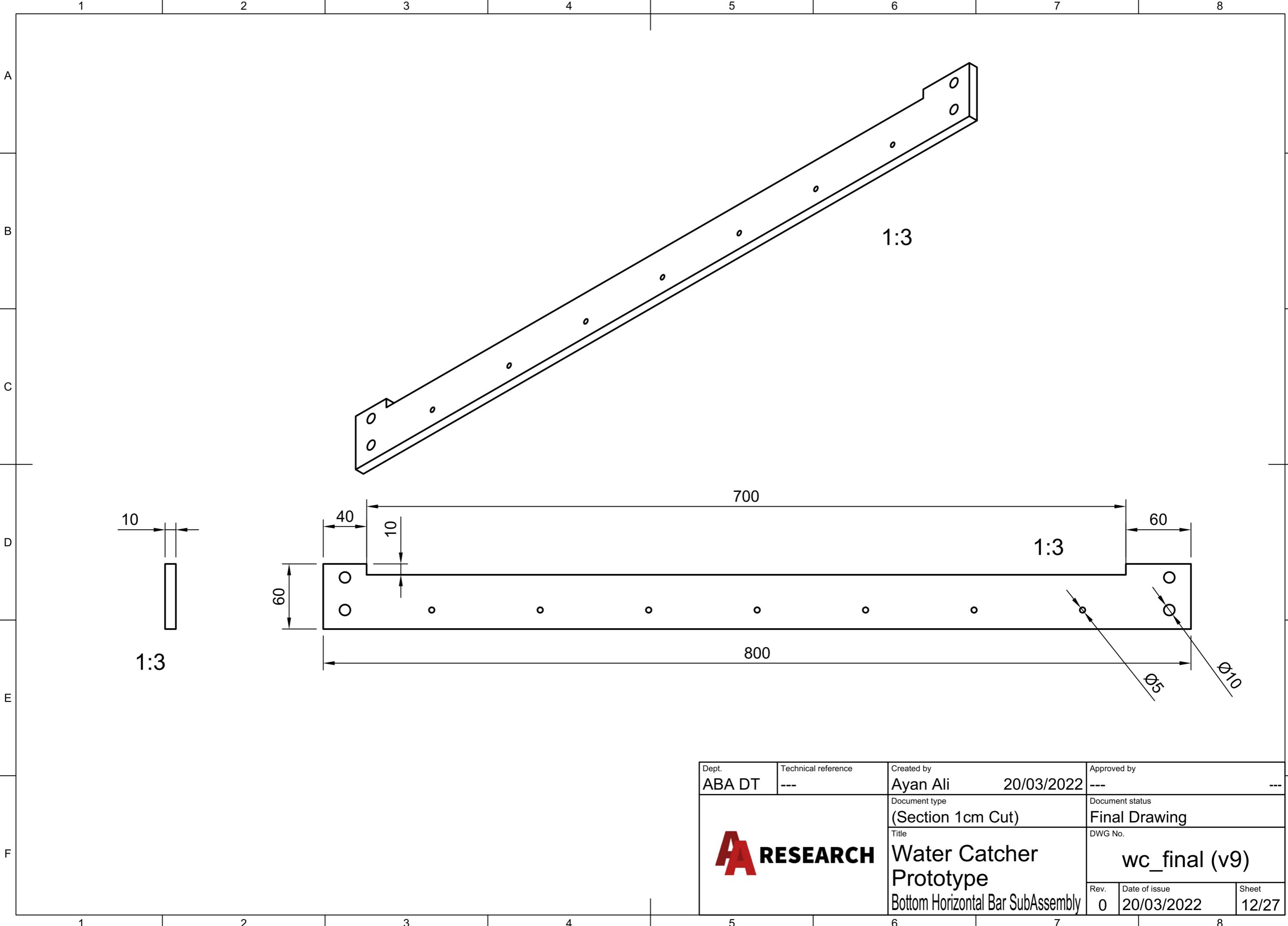
F

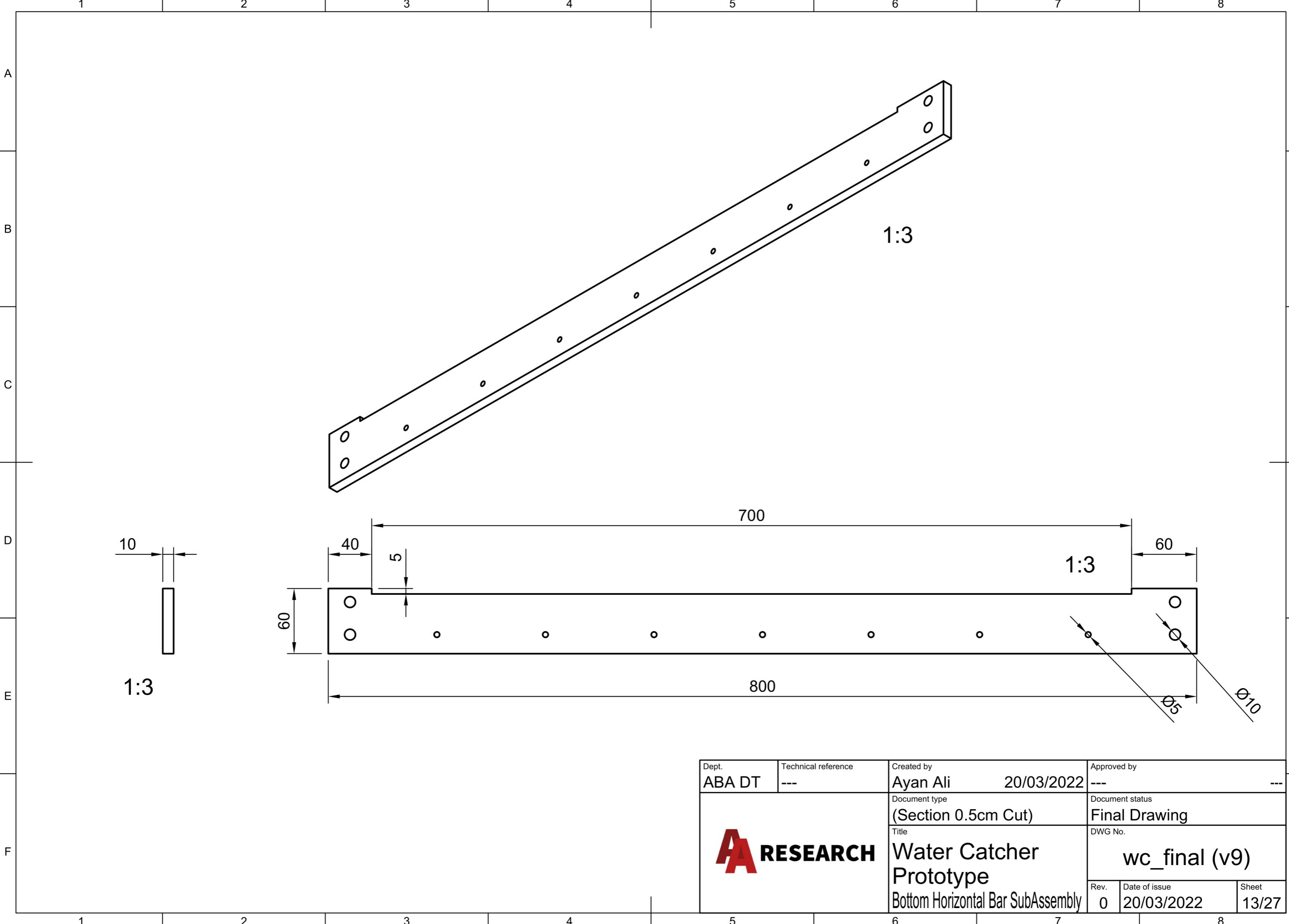
F

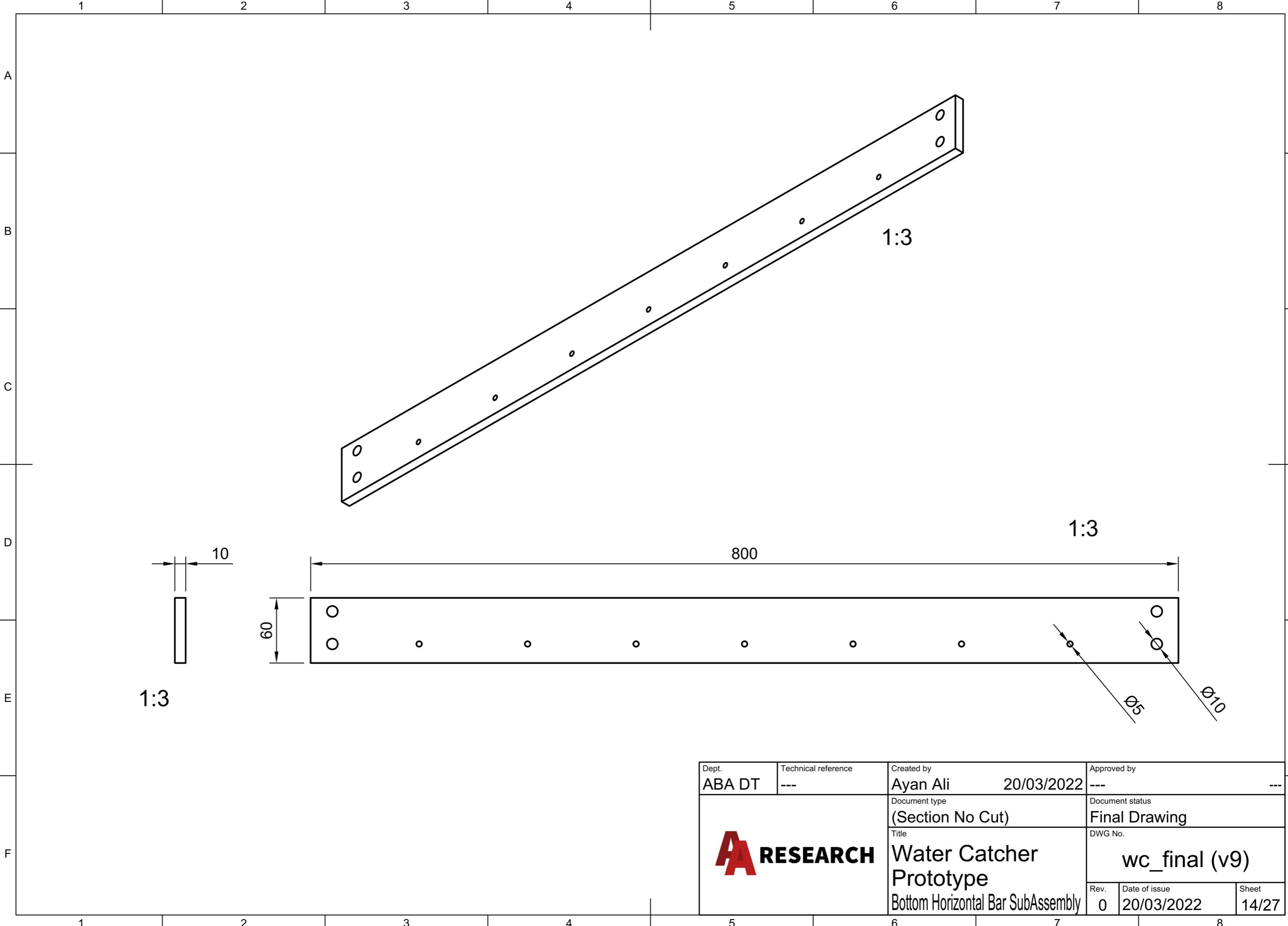


Dept. ABA DT	Technical reference ---	Created by Ayan Ali	Approved by ---
		20/03/2022	---
		Document type (Section 2cm Cut)	Document status Final Drawing
		Title Water Catcher Prototype	DWG No. wc_final (v9)
		Bottom Horizontal Bar SubAssembly	Rev. 0 Date of issue 20/03/2022 Sheet 10/27

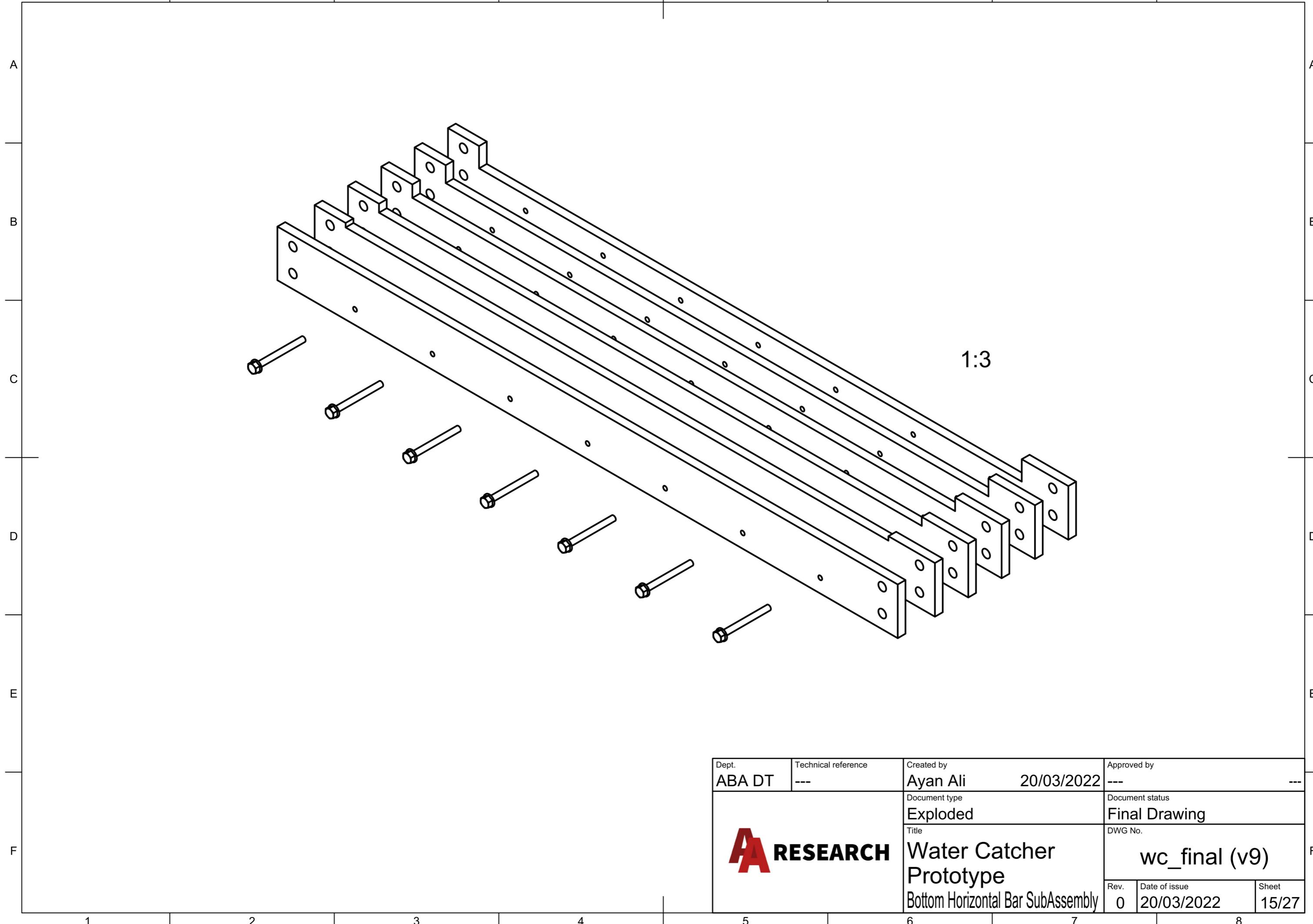








1 2 3 4 5 6 7 8



1 2 3 4 5 6 7 8

A

A

B

B

C

C

D

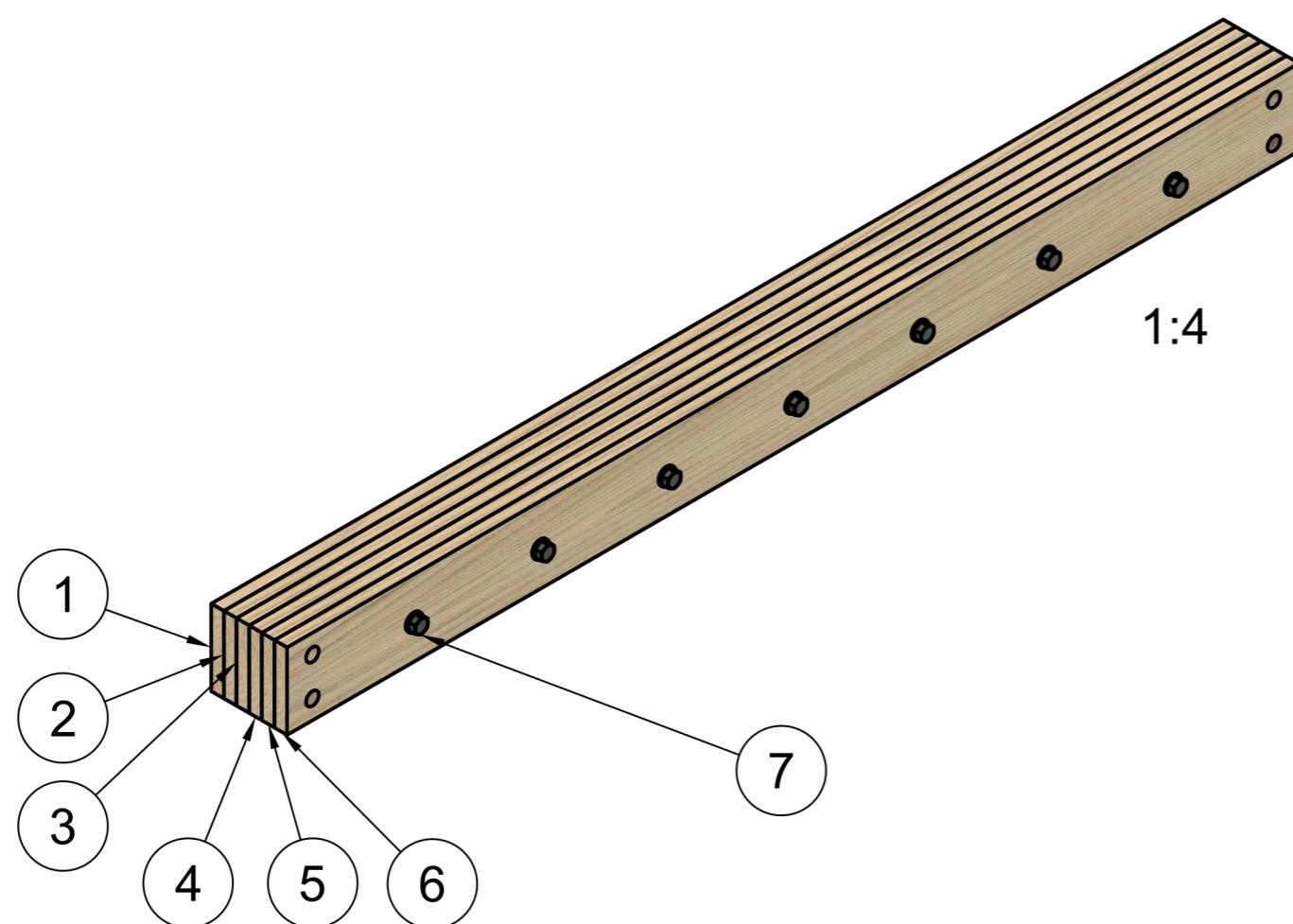
D

E

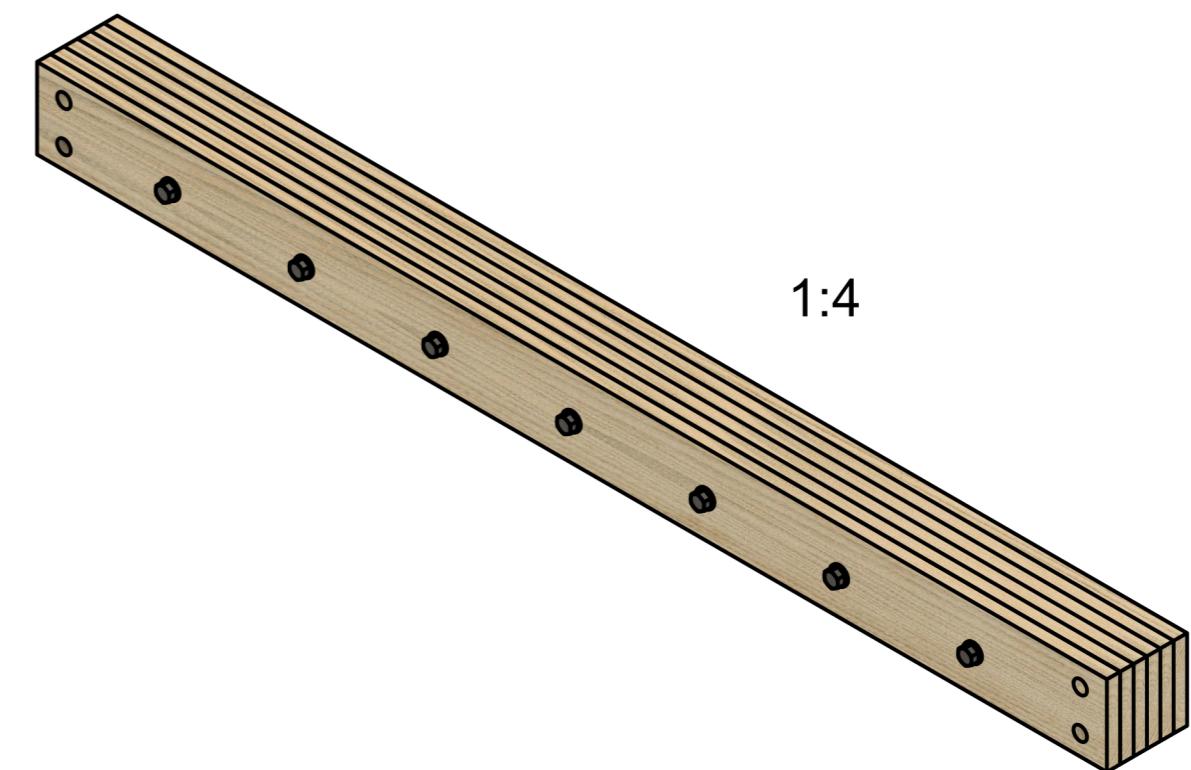
E

F

F



1:4

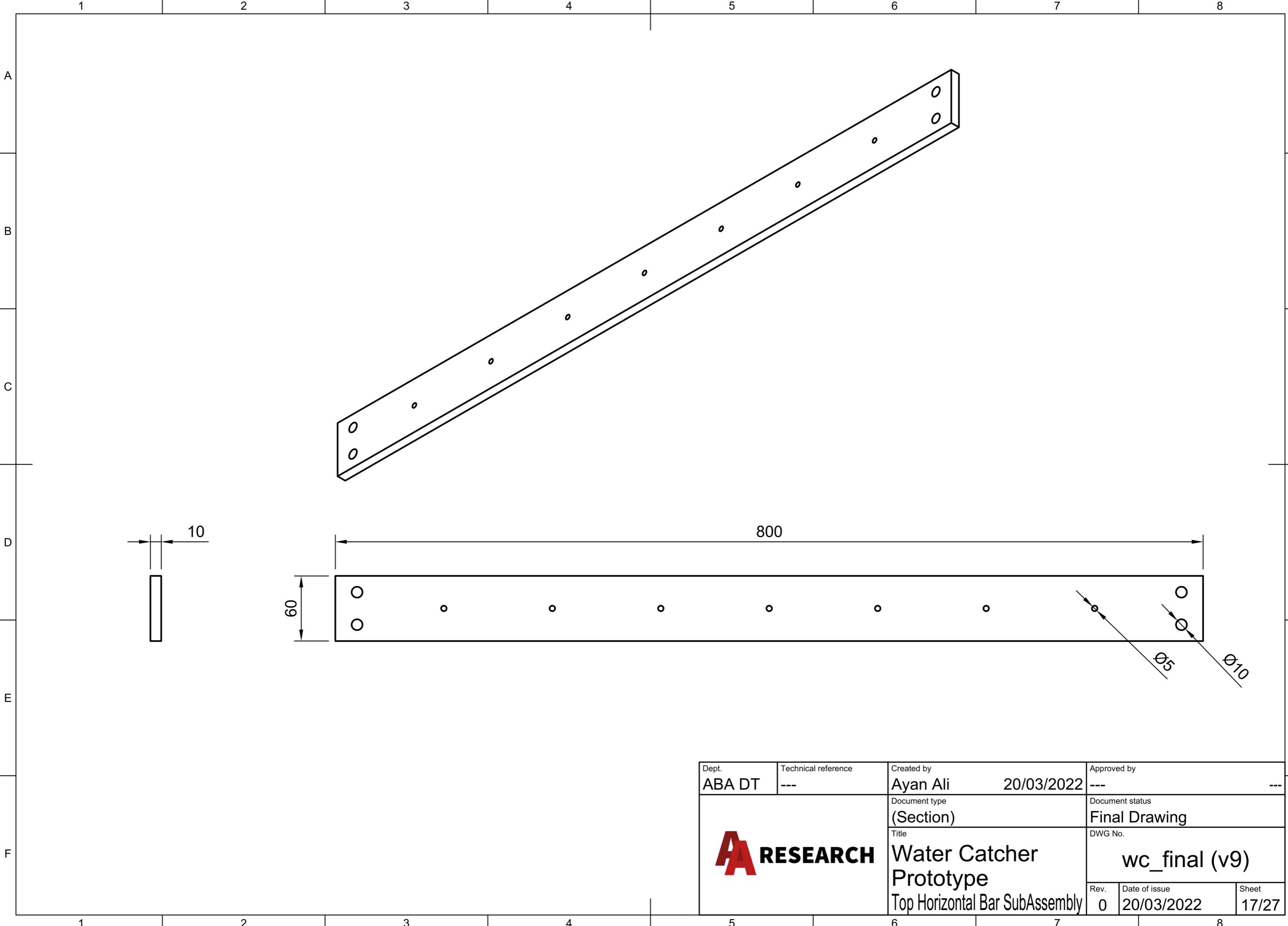


There is only one section of plank in the bottom horizontal bar, this is:

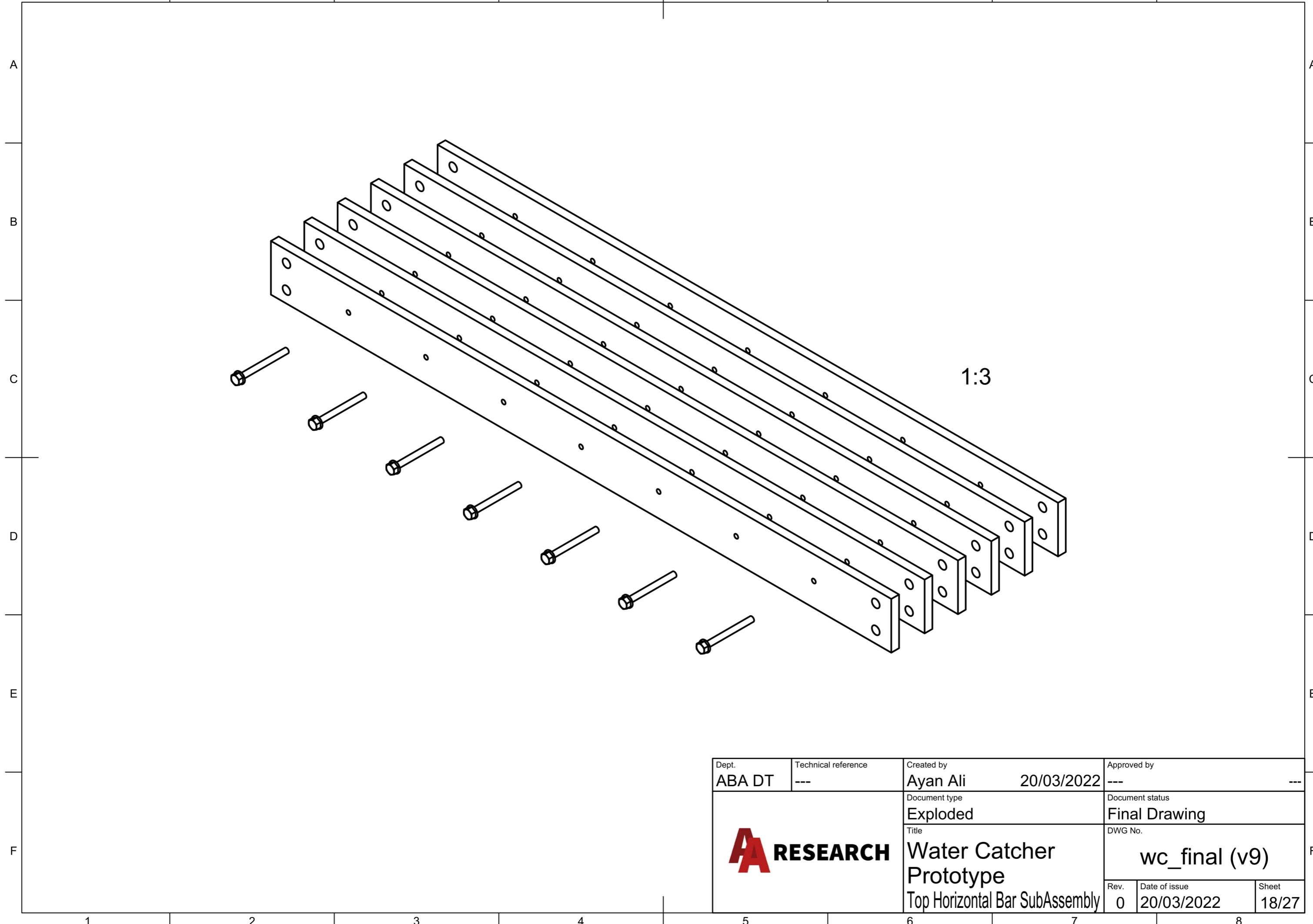
(1) Section

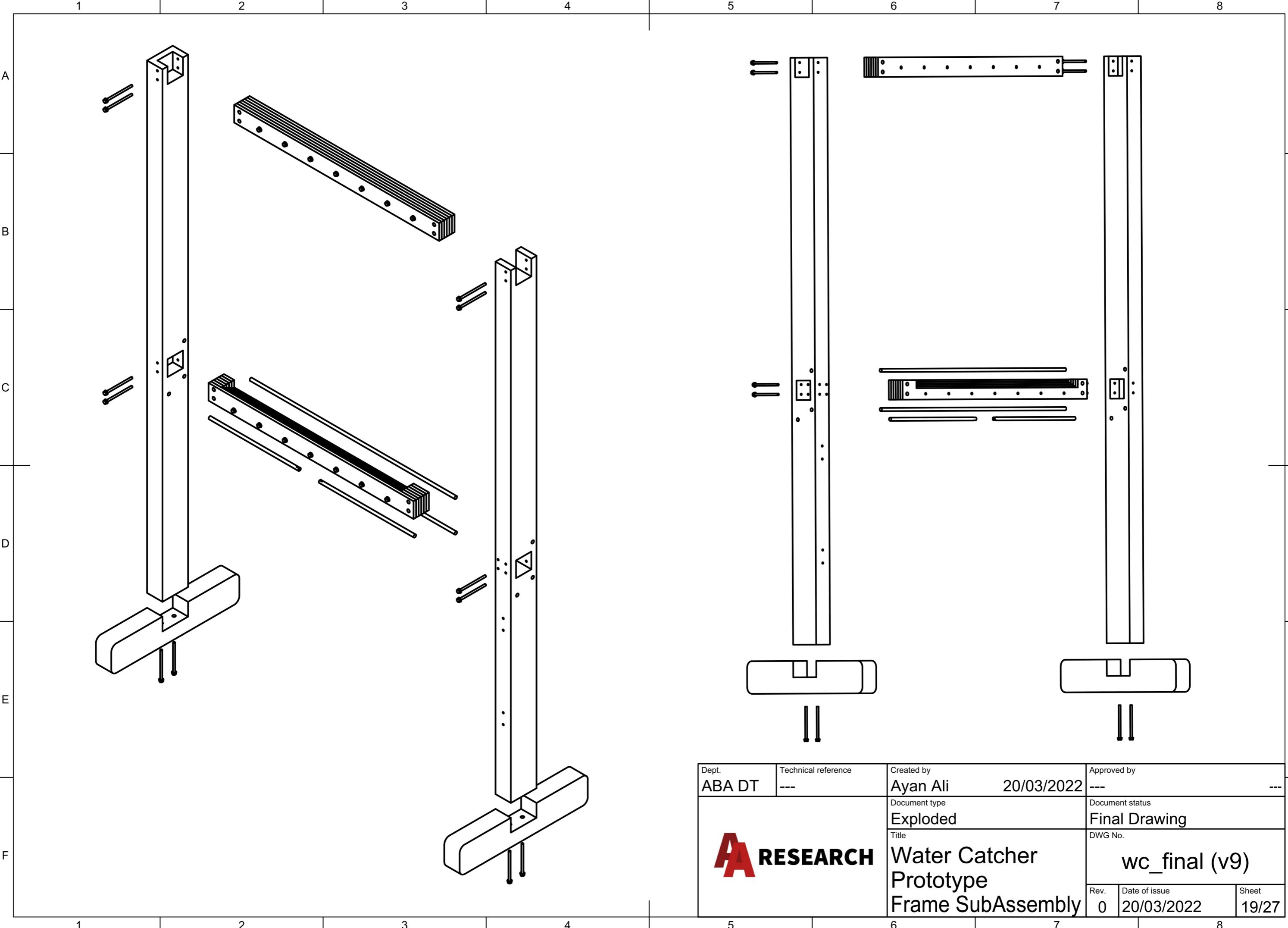
Parts List			
Item	Qty	Part Number	Description
1	1	Section 6	
2	1	Section 5	
3	1	Section 4	
4	1	Section 3	
5	1	Section 2	
6	1	Section 1	
7	7	Hex M6 6cm Cut Screw	

Dept. ABA DT	Technical reference ---	Created by Ayan Ali 20/03/2022	Approved by ---
		Document type Isometric	Document status Final Drawing
		Title Water Catcher Prototype Top Horizontal Bar SubAssembly	DWG No. wc_final (v9)
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1 2 3 4 5 6 7 8





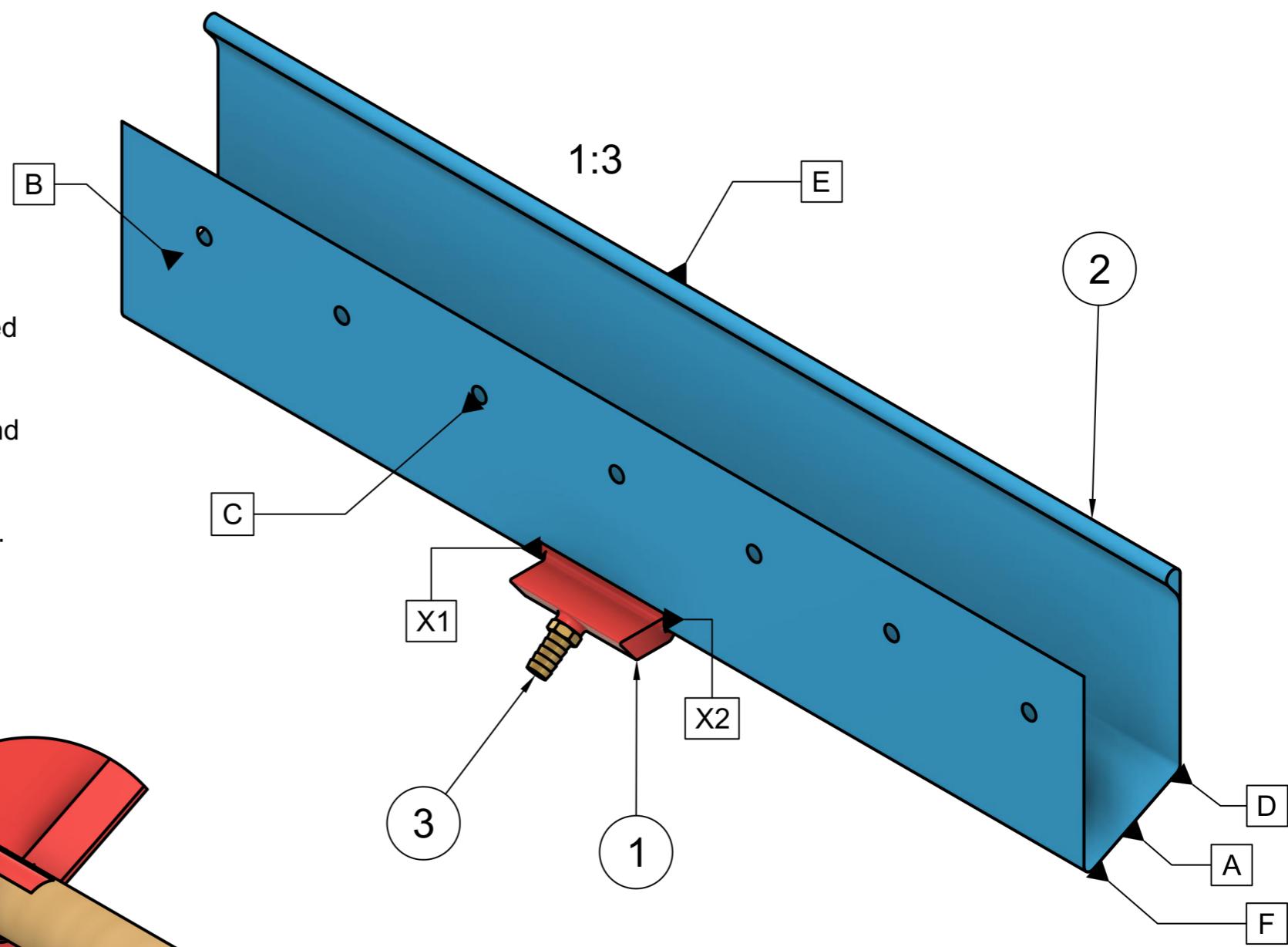
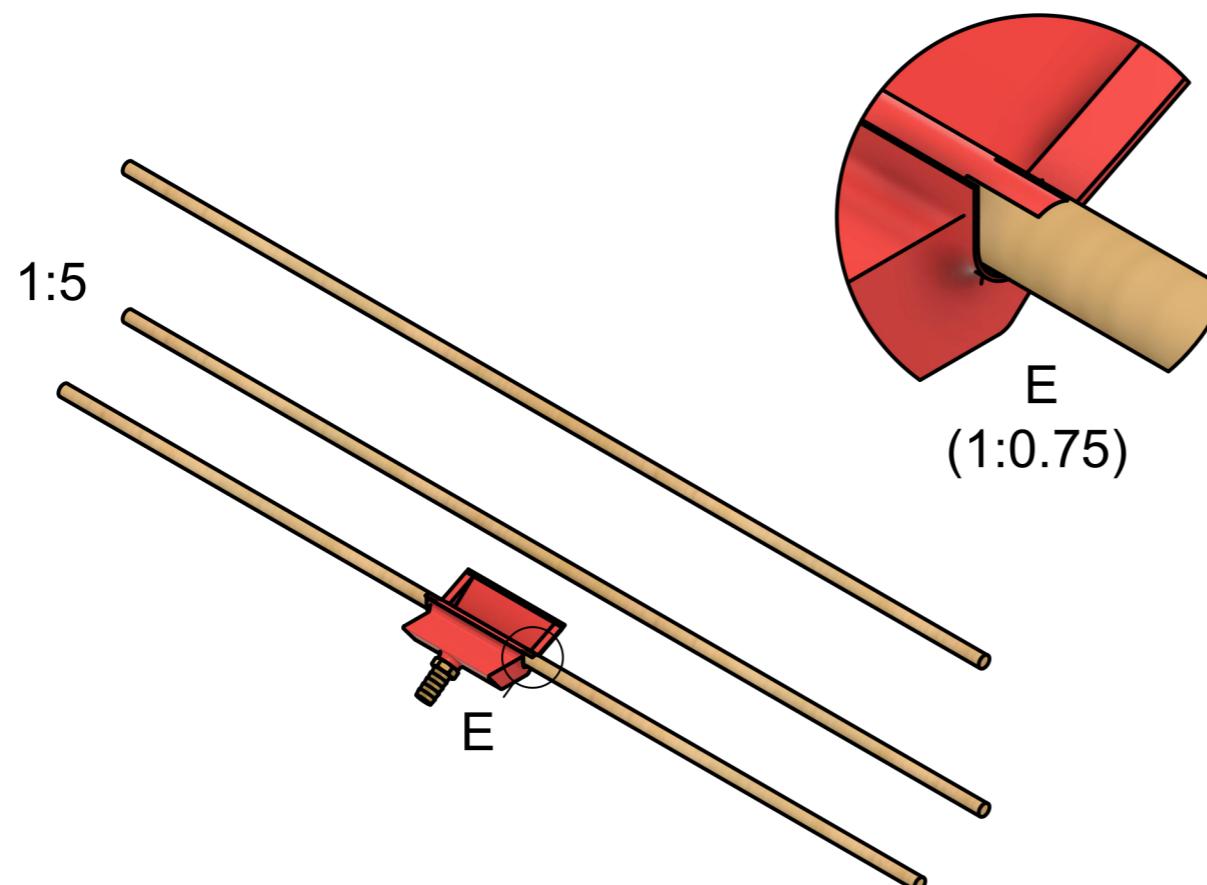
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

A
The blue tarp here is made from tarpaulin fabric, although it cannot hold water for more than 2-3 hours it is water resistant meaning none can get through, and it is very light meaning package weight is reduced. This means it is the perfect fabric for acting as a sort of large funnel that will guide the water into the red plastic funnel so that it can be collected.

B
The tarp will have 5 bend, and 3 stitch lines, with extra fabric being folded and stitched on each side to prevent run off on either side (not modeled in the isometric for simplicity, but marked with A and B).

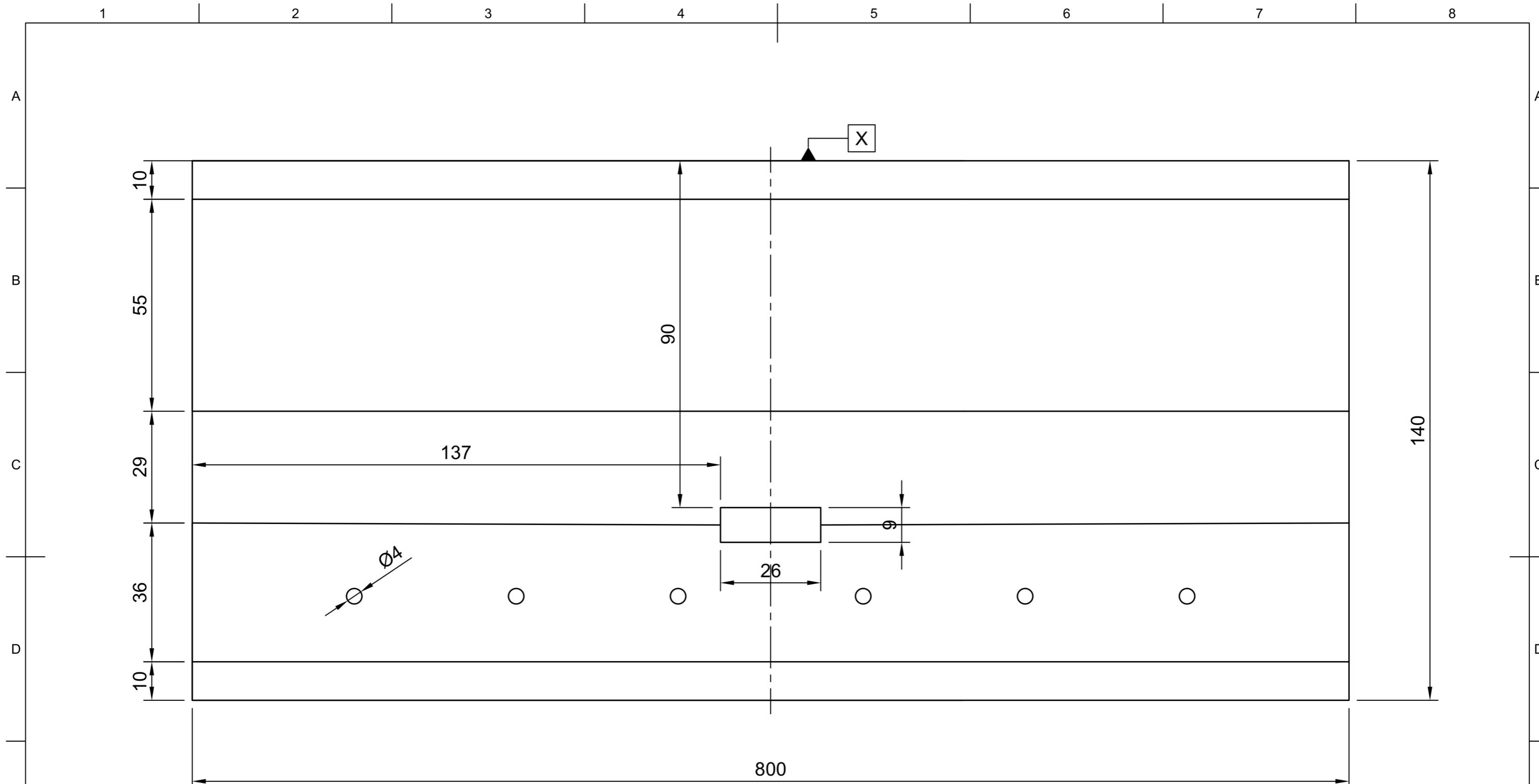
C
The red plastic funnel will slot into the split dowel at point X1 and X2, also shown in the detail view of E.

D
The tarp will bend around the three dowels at point F, D, and E. It will be bolted to the Bottom Horizontal Bar through the holes at C, the same bolts are also used to clamp the net into the Bottom Horizontal Bar (shown later), this is done to prevent excess screws and thus reduce cost.



Parts List				
Item	Qty	Part Name	Description	
1	1	Funnel		
2	1	Tarpaulin		
3	1	Brass M10 12mm Hose Fitting		
Dept.	Technical reference	Created by	Approved by	
ABA DT	---	Ayan Ali	20/03/2022	---
		Document type	Document status	
		Isometric	Final Drawing	
		Title	DWG No.	
		Water Catcher Prototype Tarp SubAssembly	wc_final (v9)	
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1 2 3 4 5 6 7 8



This piece is made using plastic tarp and has the following holes cut, the square hole is for the funnel and the funnel is glued onto the plastic tarp using super glue, and the holes are where bolts will pass through mounting the piece securely on one end, the other end marked X will be curved around the wooden dowel and stitched accordingly to make a sort of sleeve.

Dept. ABA DT	Technical reference ---	Created by Ayan Ali 20/03/2022	Approved by ---
		Document type (Tarp)	Document status Final Drawing
		Title Water Catcher Prototype Tarp SubAssembly	DWG No. wc_final (v9)
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